UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

October 17, 2000

Sharon Price
Federal Highway Administration
Evergreen Plaza Building
711 S. Capitol Way
Olympia, Washington 98501

Re: Kennedy Memorial Bridge Replacement BRS-STPR-A364(001), (NMFS No. WSB 00-92), Biological Opinion

Dear Mrs. Price:

This document transmits the National Marine Fisheries Service's (NMFS) biological opinion (BO) for the proposed Kennedy Memorial Bridge replacement in Walla Walla County, Washington. The BO is based on our review of the proposed project and its effects on Mid-Columbia River steelhead (*O. mykiss*). Formal consultation was performed in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). This biological opinion is based on information provided in a biological assessment dated January, 2000.

The Federal Highway Administration (FHWA) requested formal consultation on February 18, 2000. The NMFS acknowledged completion of the initiation package and initiation of formal consultation on April 4, 2000. A complete administrative record of this consultation is on file at the Washington Habitat Branch Office.

The FHWA determined that the proposed project is likely to adversely affect Mid Columbia River steelhead. The NMFS did concur with the FHWA's determination. NMFS' concludes that implementation of the proposed project is not likely to jeopardize the continued existence of Mid-Columbia River steelhead. In your review, please note the incidental take statement, which includes reasonable and prudent measures and terms and conditions to minimize take.

If you have any questions, please contact Stephanie Ehinger of my staff at (360) 534-9341.

Sincerely,

Joe Scordino
Deputy Regional Administrator

Enclosure:

cc: Katherine Nicholas, FHWA
Paul Wagner, WSDOT

ENDANGERED SPECIES ACT - SECTION 7

BIOLOGICAL OPINION

Kennedy Memorial Bridge Replacement Project
WSB-00-092

Agency: Federal Highway Administration

Consultation Conducted By: National Marine Fisheries Service,
Northwest Region
Washington State Habitat Branch

Approved _____ Date Issued: October 17, 2000

Joe Scordino
Deputy Regional Administrator

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I. DESCRIPTION OF THE PROPOSED PROJECT

A. Project Background and Consultation History

On February 18, 2000 the National Marine Fisheries Service (NMFS) received a request for formal consultation for the Kennedy Memorial Bridge replacement project in Walla Walla County from the Federal Highway Administration. On April 4, 2000 NMFS acknowledged completion of the initiation package and started formal consultation. The NMFS consulted with the applicant between April 4, 2000 and May 10, 2000. The consultation involved correspondence and communications with John Dirr (Walla Walla County), Mark Grandstaff (Washington Department of Fish and Wildlife), and Ben Burke (Adolfson and Associates). The consultation resulted in modifications to the proposed project to reduce impacts to Middle Columbia River steelhead. Modifications include improved riprap design and additional riparian plantings. On May 12, 2000 the NMFS sent a draft Biological Opinion (BO) to the applicant. This BO reflects the results of the consultation process and comments to the draft BO.

The objective of this BO is to determine whether the proposed project is likely to jeopardize the continued existence of Middle Columbia River Steelhead Trout (*Oncorhynchus mykiss*), or result in the destruction or adverse modification of their critical habitat. The standards for determining jeopardy are described in section 7(a)(2) of the ESA and further defined in 50 C.F.R. Part 402.14. The method of determination is described in more detail in Section III of this Biological Opinion.

B. Proposed Project Activities

Kennedy Memorial Bridge is located in Walla Walla county south west of Walla Walla. It spans the Walla Walla River at the crossing of Mojonnier Road. The Walla Walla River is a tributary to the Columbia and located in the Mid-Columbia evolutionary significant unit (ESU).

The applicant proposes to replace the Kennedy Memorial Bridge. The bridge has a failing concrete wing-wall, inadequate load capacity, and forms a hydraulic constriction. The existing four-span bridge has three in-stream piers. The northern approach extends approximately 20 meters into the river. The proposed new bridge consists of a single span with no mid-river piers, eliminating the existing channel constriction, and spanning the 100 year flood plain. The new bridge alignment on the north side of the river would be moved about 120 meters downstream. The south side alignment would move about 20 meters downstream.

The proposed project does not provide for increased vehicle capacity. The proposed action does not require the construction of a detour bridge. Traffic will be routed to existing roadways during construction.

Construction Timing: The Kennedy Memorial Bridge replacement is scheduled for construction between July 15 and December 31, 2000. Setup and cleanup may extend past this construction window. Asphalt paving could extend into spring of 2001. The project area would be dewatered/piped between July 15 and October 31, 2000.
Dewatering of the Project Area: The applicant proposes to temporarily pipe the Walla Walla

River through the construction area between July 15 and October 31. Surface flow would be directed through a maximum of 50 meters of culvert which would be located in/above the stream bed. This would lead to dewatering of approximately 750 square meters (sqm) of streambed. A gravel bag revetment or similar device to prevent backwater from entering the work area would be used at the bypass inlet and at the end of the bypass. All salmonids in the dewatered area would be captured and transported to free-flowing water. Capture and transport of salmonids would begin immediately after the installation of the upstream revetment and last till all salmonids were removed. Placement and removal of the bypass structure would take each a maximum of one day.

Bridge Removal: Removal of the old bridge would begin after the Walla Walla River has been piped through the construction area. The applicant would clean the bridge deck clean of aggregate, and other earthen debris. The bridge deck would be removed by cranes, in large sections, or dropped in pieces into the dewatered area and drug out with heavy equipment. With either method material is expected to crumble and fall onto the dewatered steam channel. Any debris falling from the bridge during removal will be removed from the dry stream channel and the stream channel restored. Piers and abutments would be removed by mechanical means. The removal of the old northern approach would restore 300 sqm of channel bed. The applicant expects to use heavy equipment in the dry stream channel for some elements of the proposed work. All disturbed streambed in the construction area would be restored to natural conditions before removal of the stream diversion pipes.

Construction of New Bridge: Steel piles would be driven on the north and south bank to support the new concrete bridge abutments. The abutments would be constructed on concrete caps poured on the steel piles. Then, post-tensioned girders would be placed on the substructure and the concrete deck poured.

Riprap Placement: Riprap revetments would be placed around the base of the abutments on the north and south side, while the stream is piped through the construction area. The proposed area of the riprap placement, exclusive of that directly underneath the bridge, is about 836 sqm (9,000 sq ft). The area directly under the bridge is about 46 sqm (500 sq ft). Riprap will be placed over approximately 37 meters (120 feet) on each side of the river. The proposed bridge is about 10 meters (30 feet) wide. Thus, of the 37 meters about 27 meters (90 feet) of the riprap are located adjacent to the bridge. Willows would be planted into the toe of the riprap for all areas within the OHWM except for the 10 meters (30 feet) of bank line directly under the bridge. To address any loss of riparian habitat because of riprap placement the applicant proposes to secure a .25 hectare riparian planting easement. This area would be revegetated with native woody vegetation. Placement of riprap would eliminate 250 sqm of scour pool upstream and downstream of the southern abutment. Placement of large boulders and LWD every 8 meters (25 feet) associated with the riprap will replace loss of potential rearing habitat.

Staging: Staging areas would be located in pastures of farm fields. They would be set back from the river by at least 15 meters. No native vegetation would be cleared for the staging or stockpile areas.

Vegetation Removal & Loss of LWD: About .2 hectares (.5 acres) of native riparian vegetation

would be removed for the construction of the new bridge and approaches. Woody vegetation that would be removed in this area is comprised of 20 alders (10-15 cm diameter at breast height (dbh), 2-3 m high) and 15 cottonwoods (5-50 cm dbh, 2-26 m high). Two LWD clusters would be lost during construction (Mark Grandstaff, pers. com., 2000).

Water Quality and Quantity Treatment: Impervious surface would increase by a net 900 sqm. Runoff from the bridge and realigned approaches would be treated 100% for water quality and quantity. Catch basins at the end of the new bridge would direct water to roadside biofiltration swales.

Habitat Enhancement: Walla Walla County proposes to place two LWD structures on the downstream side of the bridge, one on each side of the river. The structure will incorporate at least two root wads, one of which will be conifer or locust. The conifer or locust may be substituted with another hardwood if necessary. The idea is to have at least one longer lasting root wad in the LWD structure. This structure should help create and sustain a pool on each side of the river. The LWD structures would be designed to not be submerged during high water, but in a way to ensure that the top of the structure will be visible at all times. The LWD would be cabled in placed at the toe of the new riprap on the downstream side of the bridge (Appendix B). Willow plantings would be inserted into the toe of the riprap for all areas within the OHWM except for the 10 meters on either bank located directly under the bridge. To mitigate for the loss of riparian habitat because of riprap placement the applicant proposes to secure a riparian planting easement in the south west corner of the bridge (Appendix C). The size of this easement is 25*10 meters, 2.5 times the size of the ripraped area. The applicant proposes to revegetate this area with native woody species.

Over .28 ha (30,000 sq ft) of area where the old road will be removed would be replanted with native woody vegetation. This area is located on the northeast corner of the bridge. Approximately .19 ha (20,000 sq ft) of this area is within 91 meters (300 feet) of the river and is parallel to and adjacent with Stone Creek a tributary to the Walla Walla River (Appendix C). This creek flows throughout the year. There is some red oiser dogwood (*Cornus stolinifera*) on site that would be saved and replanted in this old road area that is to be abandoned. The County proposes to transplant the dogwood and to plant additional trees in the area such as cottonwood and alder (conifers are not native to the area). The applicant proposes to plant at least twice as many cottonwoods and alders as are being removed (see above) for the construction of the new alignment.

The County also proposes to plant low woody vegetation underneath the power line on the barren southwest corner of the bridge (Appendix C). They propose to attempt to save the lone tree on the southeast corner of the bridge.

II. STATUS OF SPECIES AND CRITICAL HABITAT

A. Species and Critical Habitat Description

Steelhead were listed as a threatened species on March 19, 1998 (63 Fed. Reg. 13347). The Middle Columbia ESU includes streams and tributaries to the Columbia River above the Wind River in Washington and the Hood River in Oregon upstream to and including the Yakima River. It encompasses all naturally spawned populations of steelhead and their progeny. Excluded are steelhead of the Snake River Basin.

Critical habitat for steelhead was proposed on March 9, 1998 (63 Fed. Reg.11482) and listed on February 16, 2000 (65 Fed. Reg. 7764). It includes all freshwater and estuarine reaches within listed ESU's. Critical habitat includes all waterways, substrate, and adjacent riparian zones below longstanding, naturally impassable barriers. The adjacent riparian area is defined as the area adjacent to a stream that provides the following functions: shade, sediment transport, nutrient or chemical regulation, streambank stability, and input of LWD or organic matter. River reaches above dams are included in critical habitat if "trap and haul" programs move listed fish around the dam. (65 Fed. Reg. 7764, February 16, 2000)

B. Life History

All steelhead in the Columbia River Basin upstream from the Dalles Dam are summer-run (stream-maturing), inland steelhead (Chapman et al. 1994). The sexually immature summer-run steelhead enter fresh water between May and October. Their pre-spawning migration can last up to one year. Steelhead adults in Washington typically spawn between February and June (Busby et al, 1996). Depending on water temperature, steelhead eggs may incubate in "redds" for 1.5 to 4 month before hatching as alevians (63 Fed. Reg. 13347, March 19, 1998). Most middle Columbia River steelhead smolt at 2 years and spend 1 to 2 years in salt water before re-entering fresh water. Steelhead require different habitat types during their life history. Spawning generally occurs in the gravel substrates of smaller streams and the side channels of larger rivers (Busby et al., 1996). Rearing juvenile steelhead utilize a variety of instream cover, including riffles, mid-channel pools, pocket water, overhanging vegetation and LWD. Juveniles will generally occupy riffle areas during the summer, and pools in spring, fall, and winter (Wydoski and Whitney, 1979). Further life history information can be found in the Notices of Proposed Rulemaking (61 Fed. Reg. 41541, August 9, 1996, and 63 Fed. Reg. 13347, March 19, 1998).

C. Status of Steelhead in the Middle Columbia ESU

Estimates of historical, pre 1960s abundance for the Middle Columbia ESU are available for the Yakima River, only. The estimated pre 1960 run size is 100,000 (WDF et. al, 1993). If we assume that other basins had comparable run sizes for their drainage areas, the total historical run size for this ESU might have been in excess of 3000,000. The most recent 5-year average run size (1989-1993) was 142,000 with a naturally produced component of 39,000. These data indicate approximately 74% hatchery run in the total run to this ESU (Busby et al., 1996). That

means that the current natural run size for the ESU might be less than 15% of estimated historic levels.

The majority of natural stocks for which data are available have been declining. Of the 14 independent stock indices for which we could compute trends, 10 have been declining and four increasing during the available data series with a range from 20% annual decline to 14% annual increase. Eight of these trends were significantly different from zero, with seven negative and one positive. Estimates of total runs size for the ESU based on differences in counts at dams show an overall increase in steelhead abundance, with a relatively stable naturally produced component (Busby et al., 1996).

D. Status of the Species in the Walla Walla

The status of the stock is depressed. No long-term spawning ground surveys are conducted on the Walla Walla, so estimates of escapement are unavailable (WDF, et al, 1993).

E. Biological Requirements

Biological requirements expressed in numerical thresholds for population parameters are not known for the middle Columbia steelhead ESU. Thus, biological requirements for this BO are defined as PFC of habitat conditions that are relevant to any steelhead life stage. These habitat conditions include all parameters listed in (NMFS, 1996), e.g. water quality, habitat access, flow/hydrology, riparian reserves.

III. EVALUATING THE PROPOSED ACTION

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of (1) defining the biological requirements and current status of the listed species, and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmon's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or

adversely modify the listed species' designated critical habitat. The NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. The NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. The NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will adversely modify critical habitat it must identify any reasonable and prudent measures available.

Guidance for making determinations on the issue of jeopardy and adverse modification of habitat are contained in *The Habitat Approach, Implementation of Section 7 of the Endangered Species Act for Actions Affecting the Habitat of Pacific Anadromous Salmonids*, August 1999. (Appendix I)

For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for migration and spawning of the listed salmon under the existing environmental baseline.

A. Environmental Baseline

The "action area" is defined by NMFS regulations as all areas affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR Part 402.02). The action area includes the stream channel of the Walla Walla River from the confluence of Stone Creek upstream of the existing Kennedy Memorial Bridge to 1 river kilometers (RK) below Kennedy Memorial Bridge. The action area also includes the adjacent riparian zone within the construction area. The stream channel in the construction zone may be directly affected during the installation of the bypass flow and the demolition of the old bridge. The wetted perimeter downstream of the upper extend of the bypass may be directly affected by temporary erosion. This erosion is expected to have mostly settled out within 1 RK. The riparian area would be directly affected by vegetation removal, regrading, and other heavy equipment work during the demolition of the old and construction of the new abutments. Also, the riparian area would be directly affected by revegetation and enhancement.

Kennedy Memorial Bridge is located on the lower Walla Walla River. The Walla Walla basin is located in the Columbia Basin Physiographic Province. Geology in this province is dominated by the Columbia River basalt formation, which is formed from lava deposition in the Miocene. The lava depositions are overlain by glaciolacustine depositions from the plio-Pleistocene. These glaciolacustine depositions are highly erodible fine soils intermixed with medium to large gravels (Franklin and Dyrness, 1973).

The Walla Walla River is formed by four major tributaries: The North and South Fork Walla Walla, that lie in Oregon, Mill Creek, which lies in Oregon and Washington, and the Touchet River, which lies north of the Walla Walla in Washinton. The action area is located on the mainstem Walla Walla River west of Walla Walla. It extends downstream past the confluence of Mill Creek with the Walla Walla River.

Land uses in the Walla Walla basin that influence salmon habitat are dominated by agriculture, grazing, water withdrawals for irrigation, flood control activities, and urban and suburban development. These historic and present land use practices have resulted in a watershed condition that does not support properly functioning conditions for any habitat function. Water quality, habitat, access, channel condition, flow and hydrology, and overall watershed condition elements in the action area appear to be at risk or not properly functioning (Adolfson, 2000; WDF et.al, 1993).

Adolfson (2000) suggests that the three most limiting factors to salmonid fish within the action area are instream flows, water quality, and habitat conditions:

Instream Flows: Irrigation withdrawals are the primary cause of reduced instream flows. The Burlingame Diversion Dam is located approximately 600 meters upstream of the action area (Photo 1). The Burlingame Dam diverts a large majority of flows within the Walla Walla River for irrigation in the summer months. But not all flows are diverted since there is a holder of a senior water right downstream and some flows must be retained within the river (Adolfson, 2000).

Discharge rates can change significantly on a daily basis as is expected for systems with extensive irrigation withdrawals. In 1999, the lowest flow at the bridge was approximately 0.15 cubic meters per second (m^3/s). The 1999 data does not show the winter period. During August and September 1999 flows ranged between about 0.27 m^3/s and 0.79 m^3/s. In 1998, the WDFW maintained a temperature monitor at this location. Flows were spot-checked monthly, flows range from about 1.7 m^3/s during the winter and spring to approximately 0.99 m^3/s from July through September (WDFW, unpublished data; Adolfson, 2000).

Water Quality: Some sections of the Walla Walla River within the action area downstream of Mojonnier Road have been designated as Clean Water Act Section 303(d) reaches because of temperature and pollution. Reduced riparian cover and irrigation withdrawals and runoff are likely to be contributors to water quality degradation within the basin (United States Army, Corps of Engineers (ACOE), 1997). Other conditions such as development and agricultural runoff also contribute to water quality problems (ACOE, 1997). WDFW provided preliminary temperature data for the BA. The reach of the river at the bridge has not been specifically listed as a Section 303(d); however, maximum temperatures in 1998 and 1999 regularly topped 21 degrees Celsius and 27 degree Celsius (and higher) temperatures are not uncommon. Average instream temperatures are highest in late July. In 1998, daily average instream temperatures at Kennedy memorial bridge were over 21 degrees every day between July 15 and July 31. Daily temperature data for 1999 has not been released, but based on summary figures, similar conditions occurred in 1999 as were observed in 1998 (Adolfson, 2000).

Habitat: Streambank conditions and floodplain connectivity in the action area are degraded by bank armoring, streambed channelization, and other flood control measures. Agricultural practices have impacted riparian buffers. Buffer width are narrow and vegetation is mostly immature. Thus abundance of large LWD is extremely low and recruitment of LWD is non existent. Also, roads, urban and rural development, and agricultural land uses have impacted channel dynamics and hydrology. Substrates in the action area are dominated by large gravel

with some cobbles. They are impacted by sand and silt deposits. (Adolfson, 2000; John Dirr, pers.comm., 2000)

Based on best available information on the current status of Middle Columbia Steelhead and the poor conditions of the environmental baseline within the action area, the NMFS concludes that the biological requirements of the Middle Columbia steelhead within the action area are currently not met. The current natural run size for the ESU might be less that 15% of estimated historic levels and the majority of natural stocks for which data are available have been declining. (Busby et al., 1996) Baseline conditions in the Walla Walla basin are degraded and in the action area none of the habitat functions are properly functioning. The three most limiting factors are flow, water quality, and habitat. Actions that do not maintain or restore properly functioning habitat conditions would be likely to jeopardize the continued existence of Middle Columbia River steelhead.

B. Status of the Species in the Action Area

Middle Columbia River ESU steelhead spawn and rear in the Walla Walla basin and use tributary streams, including the Touchet River, Little Walla Walla River, Mill Creek, Cottonwood Creek, and Yellowhawk Creek (Busby et al., 1996; Grandstaff, pers. comm., 1999; WDFW, 1999; ACOE, 1997).

Walla Walla River steelhead are believed to follow the general timeline of Mid-Columbia summer-run steelhead. Specific run timing for Walla Walla River steelhead has not been determined, (Table 1). During the spring, the action area contains young-of-the-year (sub-yearlings) steelhead, outmigrating juvenile fish, and some adult resident rainbow trout (Adolfson, 2000).

The action area is mainly used as a migration corridor by steelhead during annual upstream spawning migrations and downstream smolt outmigration. Both spawning and rearing habitat, especially summer rearing habitat, are limited because of embedded gravels, elevated summer temperatures, low instream flows, and lack of LWD and overhanging vegetation. The action area is downstream of most of the steelhead rearing and spawning activity within the mainstem Walla Walla River (ACOE, 1997). Sub-yearlings are thought to be mainly spawned in nearby tributaries (Mill Creek and Cottonwood Creek) or produced in main stem habitats upstream of Milton-Freewater. Upstream habitats in the Oregon portion of the Walla Walla basin are less disturbed than in Washington and provide most of the wild steelhead production within the basin (ACOE, 1997; Adolfson, 2000).

Scour pools measuring approximately 250 sqm have formed upstream and downstream of the existing southern abutment. These pools likely provide rearing habitat for juvenile salmonids. Some data are available to support the assumption, that few rearing steelhead and only occasional adults use the action area in the summer. In the summers of 1998 and 1999, WDFW conducted electrofishing and snorkel surveys throughout the basin including directly downstream from Kennedy Memorial Bridge and below Burlingame Dam. The raw data provided by WDFW (unpublished) is included in The Hydraulic Project Approval. Based on these data, rearing

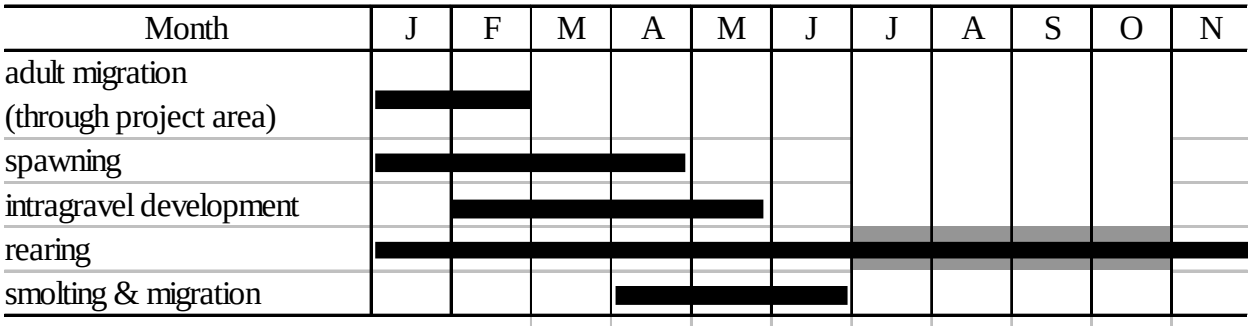
salmonid use within the action area during the proposed in-water construction window, although present, is low.

As temperatures rise in June juvenile steelhead have completed their outmigration. Few sub-yearling fish are found in the action area during the summer and fall. It is thought that most sub-yearling fish within found in the action area during the spring perish as a result of high temperatures or find refuge in springs or tributaries with more suitable water quality conditions (Adolfson, 2000).

An electrofishing survey conducted by WDFW on August 8, 1998 directly downstream from Kennedy Memorial Bridge found no sub-yearling steelhead, no juvenile steelhead, and one adult (larger than 20 centimeters) rainbow trout (Table 2). A snorkel survey conducted on September 16, 1998 found one sub-yearling steelhead, one juvenile steelhead, and no adult rainbow trout immediately downstream of the Kennedy Memorial Bridge (Table 2).

Surveys of the same areas using the same methods in the summer of 1999 found similar results. The 1999 electrofishing survey conducted on August 5 found seven sub-yearling steelhead, no juvenile steelhead, and no adult trout. A snorkel survey downstream of the bridge conducted on June 17, 1999 found 24 sub-yearling steelhead, three juvenile steelhead, and one adult trout. The same area was surveyed on August 20, 1999 and 38 sub-yearling steelhead, no juvenile steelhead, and no adult trout were found at the bridge (Table 2). In 1999, snorkel surveys were also conducted downstream from Burlingame Dam (approximately 600 meters upstream from the bridge) on June 22 and August 5. The June survey found 62 sub-yearling steelhead, nine juvenile steelhead, and no adult trout. The August survey found 11 sub-yearling steelhead, no juvenile steelhead, and no adult trout (Table 2) (Adolfson, 2000).

Table 1: Life History of Mid-Columbia Steelhead and Project Timing



(WDFW, 1994)

Table 2: Summary of Fish Density Surveys

Date	Location	Type	Sample Area (m^2)	sub-yearling #	sub-yearling #/100 m^2	juvenile #	juvenile #/100 m^2	Adult #	Adult #/100 m^2
08/05/1998	Burlingame Dam	S	764.8	11	1.438	0	0	0	0
08/27/1998	Kennedy Bridge	E	539.3	0	0	0	0	1	0.185
09/16/1998	Kennedy Bridge	S	1631.3	1	0.061	1	0.061	0	0
08/05/1999	Kennedy Bridge	E	532.4	6	1.127	0	0	0	0
08/20/1999	Kennedy Bridge	S	1336	38	2.844	0	0	0	0
			Average	**11.2**	**1.094**	**0.2**	**0.012**	**0.2**	**0.037**

(WDFW, unpublished)
E – Electrofishing Surveys
S- Snorkel Surveys

IV. ANALYSES OF EFFECTS

A. Effects of Proposed Action

Based on the nature of the proposed action and the manner in which it has been planned, the only direct effects on habitat functions will be short term. Long-term effects, if any, will be beneficial.

Direct effects of the proposed bridge replacement may result from piping approximately 50 meters of the Walla Walla River through the construction area. The piping and associated dewatering of 750 m^2 of construction area could affect fish in four ways:

- Fish in the dewatered section may die if not moved from the dewatered sections, or be harmed during removal.

- Fish will be excluded from habitats within the dewatered sections.

- The diversions may result in migratory barriers or could block fish movement within the stream.

- Fish downstream of the piping may be impacted by short term increase in sedimentation.

Direct effects of the proposed action would be minimized by timing. The piping and dewatering of the Walla Walla River in the construction area would occur between July 15 and October 31. During this period, adult steelhead migration and spawning has been completed and outmigrating smolts are expected to have left the freshwater (Table 1). Also, the number of rearing steelhead in the action area during the summer time is expected to be low because of lack of suitable habitat. Summer rearing habitat in the action area is poor because of high water temperatures and lack of properly functioning conditions for all other habitat parameters. Low steelhead presence during the summer, was confirmed by WDFW surveys in 1998 and 1999. These surveys detected 1.1 sub-yearling steelhead per 100 m^2 in the action area. The occasional adult and yearling juvenile averaged lead to detections of .2 fish per 100 m^2. (Table 2).

Dewatering and piping the Walla Walla within the construction area may result in harm or mortality to fish. Sub-yearlings and juveniles may hide in crevices and spaces between boulders and be missed, or be harmed from the stress of being handled. Thus, even though the applicant proposes to move all fish safely to free flowing water downstream of the action area, this action may be associated with take.

Habitat functions in the action area are at risk or not properly functioning. Still, some fish are known to use the action area during temporary dewatering (Table 2). Dewatering 750 m^2 of the action area will eliminate already scarce habitat in the action area. Also, salmonids that are captured from the dewatered area and released in free flowing water may have difficulties finding suitable unoccupied habitat. The search for new habitat may kill the already stressed fish. Having to search for new rearing habitat may increase the likelihood for sub-yearlings and

juveniles to encounter predators.

The 50 m pipe through the construction area may pose a migration barrier for fish trying to move upstream. Juvenile steelhead rearing in the action area downstream of the stream diversion will be prevented from entering rearing habitat upstream of the stream diversion. These juveniles may be subjected to an increased risk of predation while searching for alternative rearing habitat. Depending on habitat conditions in the action area downstream of the stream piping and predator distribution not all juveniles may be harassed. It is important to keep in mind though, that no adult or smolt migration is expected to occur in July and August, and only, minimal sub-yearling and yearling movement is expected during the low flow summer month. Thus, the potential barrier should effect few fish.

Placement and removal of the bypass structure may temporarily increase the sediment load in the action area. Short term pulses of sediment are expected to occur twice, when the Walla Walla River is routed through the pipe and again after completion of instream work when the Walla Walla River is routed back into the stream bed. Placement and removal of the bypass structure would take each a maximum of one day. These sediment pulses may adversely effect rearing sub-yearling and juvenile steelhead in the action area downstream of the construction area.

Effects of increases in suspended sediments on juvenile salmonids depend on many factors including background turbidity, amount of increase in turbidity, and duration of increased turbidity. Bisson and Bilby (1982) show that juveniles salmon avoid turbid water when turbidity exceeded a threshold level. For some coho this threshold was 70 nephelometric turbidity units (NTU). Berg and Northcote (1985) demonstrated downstream displacement, disruption of feeding and social behavior, and gill flaring of juvenile coho because of pulses of sediment. Servizi and Martens (1992) show that turbidity does not cause direct mortality unless extremely high levels occur. These studies suggest that the two separate days of moderately increased sediment levels that are expected to occur during construction may cause some downstream displacement of juvenile steelhead, disruption of social and feeding behavior, and gill flaring. These effects would constitute harassment. Direct mortality seems unlikely, because of the short term nature and moderate increase in turbidity.

The proposed action will not be repeated again within the next 50 years (design life of the bridge). Adverse effects are expected to last only for the duration of the proposed dewatering. After the Walla Walla River is redirected into the restored stream channel, no direct effects on fish are expected to occur. Other effects from the bridge replacement during the entire construction period, July to December, are limited to noise and increased human activity. The NMFS considers these possible effects on steelhead negligible.

B. Effects on Critical Habitat

Critical habitat is designated for steelhead (65 Fed. Reg. 7764, February 16, 2000). It includes all freshwater and estuarine reaches within listed ESU's. Critical habitat includes all waterways, substrate, and adjacent riparian zones below longstanding, naturally impassable barriers. The adjacent riparian area is defined as the area adjacent to a stream that provides the following functions: shade, sediment transport, nutrient or chemical regulation, streambank stability, and input of LWD or organic matter. River reaches above dams are included in critical habitat if trap and haul programs move listed fish around the dam.

The proposed placement of 37 meters (120 feet) of riprap on either side of the river would degrade riparian habitat and channel morphology. Placement of LWD, large projecting rocks, and willow plantings in the riprap would reduce adverse impacts to the critical riparian habitat. To address the loss of riparian habitat because of riprap placement the applicant proposes to secure a .25 hectares (25*10 m) riparian planting easement located on the south west corner of the bridge. This now barren area would be revegetated with native woody species.

The removal of .2 hectares of riparian vegetation that is associated with the proposed project would also result in adverse impacts to critical riparian habitat. The impact is small though, because the existing woody vegetation is sparse and immature. Woody vegetation that would be removed in this area is comprised of 20 alders (10-15 cm d.b.h., 2-3 m high) and 15 cottonwoods (5-50 cm d.b.h., 2-26 m high).

To replace lost riparian functions associated with vegetation clearing for the new alignment and riprap placement, the following three riparian planting areas would be established:

5. Over .28 ha (30,000 sq ft) of area where the old road will be removed would be replanted with native woody vegetation. This area is located on the northeast corner of the bridge. Approximately .19 ha (20,000 sq ft) of this area is within 91 meters (300 feet) of the river and is parallel to and adjacent with Stone Creek, a tributary to the Walla Walla River. The red oiser dogwood (*Cornus stolinifera*) on site would be saved and replanted in this old road area that is to be abandoned. The County proposes to transplant the dogwood and to plant additional trees such as cottonwood and alder (conifers are not native to the area). Because of the temporal loss associated with removing 35 several years old trees and replanting with smaller trees, a mitigation ratio of more than 2:1 (trees removed: trees planted) was chosen.

6. The applicant proposes to plant some low native woody vegetation under the power lines in the northwest corner of the bridge.

7. To mitigate the loss of riparian habitat because of riprap placement the applicant proposes to acquire a riparian planting easement in the south west corner of the bridge (Appendix C). The size of the planting easement is approximately 25*10 meters. The area is approximately 2.5 times the size of ripraped area. This currently barren area would be revegetated with native woody vegetation.

The NMFS expects that the measures associated with the riprap placement (including the vegetation plantings) will ensure that baseline conditions for critical riparian habitat will be maintained if not improved in the long term.

Placing riprap on the southern bank would eliminate the scour pool upstream and downstream of the southern abutment. These 250 m^2 of pool habitat are potential rearing areas for juvenile salmonids. Placement of LWD and boulders every 7.6 meters (25 feet) with the proposed riprap would replace the loss of this potential rearing habitat.

The proposed piping may temporarily increase the sediment load in the action area. Short term pulses of sediment are expected to occur mainly when the Walla Walla River is routed through the pipe and after completion of instream work back into the stream bed. Both events are expected to last a maximum of one day. Adverse effects on critical habitat may result from an increase in turbidity. These effects include embedding gravel and increasing stream temperature because of increased solar adsorption. Most of the material that will contribute to the increase in turbidity will come from within the stream channel. Thus, the baseline for sediment load will not be altered if viewed over a longer time period. Only, the timing of the sediment movement will be affected. The sediment that will be transported downstream during the construction and removal of the stream diversion is expected to have moved at the next high flow events. Thus, the NMFS expects the changes to the embededness of the gravel viewed over a longer time period to be discountable. Because of the short duration and extend of the increase in turbidity the effect on temperature is expected to be negligible, too.

No changes in hydrology, water chemistry, and watershed conditions is expected to result from this project.

The long-term beneficial effect on critical habitat that would result from the proposed action would be the elimination of the three instream piers and the channel constriction. Replacing the old bridge with a longer single span bridge would allow for restoring 300 m^2 of streambed at the northern abutment. Also, in the long term riparian conditions may be slightly improved because of the 2:1 planting mitigation ratio.

C. Cumulative Effects

Cumulative effects are those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation (50 CFR 402.02).

The Walla Walla River basin is heavily used for agriculture. More recently, urban, suburban, and rural development have increased in the Walla Walla River basin. The City of Walla Walla is located upstream from the action area. Although the river does not flow through the City, major tributaries such as Mill Creek, Yellowhawk Creek, and Cottonwood Creek have been impacted to various degrees by the urban and rural development. The current Walla Walla County Code does not provide adequate protection for salmon bearing streams. For example, there are no specific building setbacks from streams (Walla Walla County, 1992). For this analysis, NMFS

assumes that urban, suburban, and rural development in the basin will continue. Also intensive agriculture with its associated adverse impacts on salmonid habitat is expected to persist. The overall effect of these basin wide activities on the baseline conditions for steelhead will to a large extend depend on improvements in agricultural practices, development regulations, and implementations of existing regulations.

In the action area for this project, agricultural activities are the main land use. Riparian buffers are not properly functioning and have little woody vegetation. Agricultural practices leave little stream buffer width. The NMFS does not see any reason to expect further habitat degradation from agricultural practices. Rather, it may be expected that heightened awareness of salmonid habitat needs and implementation of the 4d take prohibition will lead to habitat improvements in the action area.

V. CONCLUSION

After reviewing the current status of steelhead in the Middle Columbia ESU, the environmental baseline in the action area, the effects of the proposed bridge replacement, and the cumulative effects, it is the NMFS's biological opinion that the activities under the proposed action would, on balance, not degrade stream conditions within the action area. Direct mortality from this project may occur during the in-water work. Accordingly, an Incidental Take Statement has been prepared as a part of this B.O. (see section IX, below). The amount of incidental take is small and does not appear to jeopardize the continued existence of the Middle Columbia steelhead ESU's. Consequently, the effects of the proposed actions covered in this biological opinion are not likely to jeopardize the continued existence of Middle Columbia River steelhead or result in destruction or adverse modification of critical habitat.

VI. REINITIATION OF CONSULTATION

This concludes formal consultation for the Kennedy Memorial Bridge Replacement Project. As provided in 50 CFR. 402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of take specified in the incidental take statement is exceeded, or is expected to be exceeded; (2) new information reveals effects of the agency action that may affect listed species to an extent not considered in this biological opinion; or (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this biological opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease, pending reinitiation.

VII. REFERENCES

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VIII. PERSONAL COMMUNICATIONS

John Dirr, Walla Walla County Public Works Dept. Engineering Office, April 2000

Mark Grandstaff, WDFW Area Habitat Biologist, April 2000

IX. INCIDENTAL TAKE STATEMENT

ESA Section 9 (and rules adopted under ESA section 4(d)) prohibits any taking of listed species. *Take* is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct of listed species without a specific permit or exemption (50 C.F.R. 217.12). *Harm* in the definition of ''take'' in the Act means an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering (50 C.F.R. 222.102). *Harass* is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavioral patterns which include, but are not limited to, breeding, feeding, and sheltering (50 C.F.R. 222.102).

Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not prohibited taking, provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

A. Amount or Extent of the Take

Juvenile steelhead, sub-yearlings, and one- and two-year juveniles could be rearing in the action area during the proposed piping of the Walla Walla River. Also, adult spawned steelhead or resident trout may be present in the action area. The NMFS anticipates that incidental take of some of these juveniles and adults will occur as a result of the following effects associated with the proposed project:

The NMFS anticipates that the proposed dewatering of 750 m^2 of the construction area of the Walla Walla River will result in some incidental take. The applicant would capture and transport all salmonids from the dewatered area safely to free-flowing water, downstream from the construction site. The success of such rescue operations depends on stream conditions and details of rescue operation including experience of rescue personnel. Regardless of the method of rescuing fish, fish may seek shelter in habitat structures and not be discovered during rescue. Especially juveniles are hard to discover if they hide in gravel or crevices between boulders.

The WDFW survey data (Table 2) give an indication of how many juvenile and adult steelhead can be expected to be present during the summer. It is important to keep in mind though, that two years of data do not allow to account for variations in run sizes between different years and resulting interannual differences in abundances for one location that are common for salmonids. The data do not enable calculation of confidence intervals for the reported abundances. Thus, the

average abundances for the action area that can be calculated form the WDFW data (Table 2) can serve as only a rough estimate of how many fish may be present during construction. Actual numbers may be much higher and can not be estimated. WDFW found 1.1 sub-yearlings, and .2 juveniles and adults each for 100 m^2 within the action area. Therefore, over 750 m^2 of affected habitat in the dewatered stream channel, approximately 8 sub-yearlings and 2 juveniles and 2 adults might be vulnerable to incidental take.

All juvenile steelhead rearing in the action area downstream of the stream diversion may be affected by the expected short term sediment pulses. Again, the WDFW survey data can serve only as a rough estimate for the actual numbers. The action area downstream of the construction area encompasses about 15,000 m^2 of wetted stream channel (1000 meters * 15 meter maximum summer wetted width). Therefore, approximately 165 sub-yearlings and 30 juveniles and adults each might be vulnerable to incidental take.

Juvenile steelhead rearing in the action area downstream of the stream diversion will be prevented from entering possible rearing habitat upstream of the stream diversion by the proposed pipe. Only little sub-yearling and yearling movement is expected during the low flow summer month. These juveniles may be subjected to an increased risk of predation while searching for alternative rearing habitat. Depending on habitat conditions in the creek and predator distribution not all juveniles may be harassed. Again, the WDFW survey data can serve as a rough estimate for the actual steelhead abundance. Accordingly, approximately 165 sub-yearlings and 30 juveniles and adults each might be vulnerable to incidental take.

B. Reasonable and Prudent Measures

The Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize the take of chinook and steelhead. These measures are consistent with provisions in the HPA (Appendix C).

1. The applicant will minimize take by performing no work in the wetted perimeter before the applicant pipes the Walla Walla River through the construction site.

2. The applicant will minimize take by safely moving salmonids from the dewatered area.

3. The applicant minimize take by minimizing the amount of riprap used. The applicant will further minimize take by placing any riprap according to specifications described in the BA and summarized in this BO.

4. The applicant will minimize take by restoring the streambed prior to releasing the river back into its bed.

5. The applicant will minimize take by reducing the impact to riparian habitat and replacing lost function. Alteration of native vegetation will be minimized.

6. The applicant will minimize take by using a Temporary Erosion and Sediment Control

Plan/Stormwater Site Plan and a Spill Prevention Plan.

C. Terms and Conditions

To be exempt from the prohibitions of section 9 of the Act, WSDOT must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1a. To implement RPM #1, a hard pipe flume shall be in use from before the demolition of the old bridge until after the final concrete pour is complete. The diversion shall not be installed before July 15 and shall be removed before October 31.

1b. The piping of the Walla Walla River shall be constructed in a manner that juvenile fish can pass through the pipe from upstream of the construction site without harm. The pipe shall be of sufficient size to pass all flows and debris for the duration of the project.

2. To implement RPM #2, the applicant shall safely move salmonids from the dewatered area immediately after installing the bypass capture. After capture salmonids shall be released immediately downstream into free flowing water. The permittee shall have fish capture and transportation equipment ready and on the job site prior to installing the bypass flume.

3a. To implement RPM #3, the applicant will minimize the amount of riprap used. In unshaded areas above the 5-year floodplain which are not scour-critical, the applicant will attempt to use biological bank control. This may include backfill with native soil and planting with native woody species. Where riprap is necessary only clean, non-erodible, angular rock of sufficient size for long-term, 100-year peak flow, bank armoring will be employed. Riprap should have a roughened toe constructed from large rocks, large boulders, or LWD, installed at a minimum of every 25 feet and have live dogwood and/or willow planted into the riprap.

3b. Riprap placement will be performed "in the dry," or while the river is piped through the construction area.

3c. As-built plans and pictures of the riprap with incorporated LWD and large boulders will be taken before release of water back into the stream bed. Both will be sent to the NMFS within 30 days of installation of riprap.

4a. To implement RPM #4, the existing concrete rubble should be removed from the construction site. It should be disposed in an appropriate manner away from the stream and riparian corridor.

4b. The streambed shall be restored to natural conditions before removal of the stream diversion pipes.

5a. To implement RPM #5, the applicant shall replace riparian functions lost because of vegetation clearing, three riparian planting areas shall be established:

The .28 ha of old road to be removed shall be replanted with native woody vegetation. This area is located on the northeast corner of the bridge. The red oiser dogwood (*Cornus stolinifera*) on site shall be saved and replanted in the area of old road removal. Also other native trees shall be planted. Because of the temporal loss associated with removing 35 well established saplings and replanting with smaller trees, a minimum mitigation ratio of more than 2:1 (trees planted: trees removed) shall be maintained.

To mitigate the loss of riparian habitat because of riprap placement the applicant shall revegetated the .25 hectare planting easement in the south west corner of the bridge with native woody species.

The applicant shall plant low native woody vegetation under the power lines in the north west corner of the bridge.

5b. All disturbed areas shall be re-vegetated with native woody vegetation during the planting season (fall to spring) following completion of construction. Species shall be selected according to species occurring in the surrounding area. The three planting areas shall be monitored and maintained for three years. The three parameters monitored will be invasive weeds, survival of planted woody vegetation, and volunteer woody species. A monitoring report, including photo documentation, will be send on an annual basis (year one, two, and three) to the NMFS. The monitoring report will include documentation of weed control and remediation.

5c. All felled trees shall be utilized on-site as habitat structures in the proposed planting areas.

6. To implement RPM #6, the applicant shall prepare and use plans for the Erosion and Sediment Control, Stormwater Site Management, and Spill Prevention. In addition, alteration or disturbance of the bank and bank vegetation shall be limited to that necessary to construct the project, as described in RPM #5. Where possible, native vegetation will be clipped by hand so that roots are left intact. This will reduce erosion while still allowing room to work.

APPENDIX A: THE HABITAT APPROACH, NMFS 1999

APPENDIX B: ROOTWAD DESIGN DETAILS

APPENDIX C: PLANTING AREAS